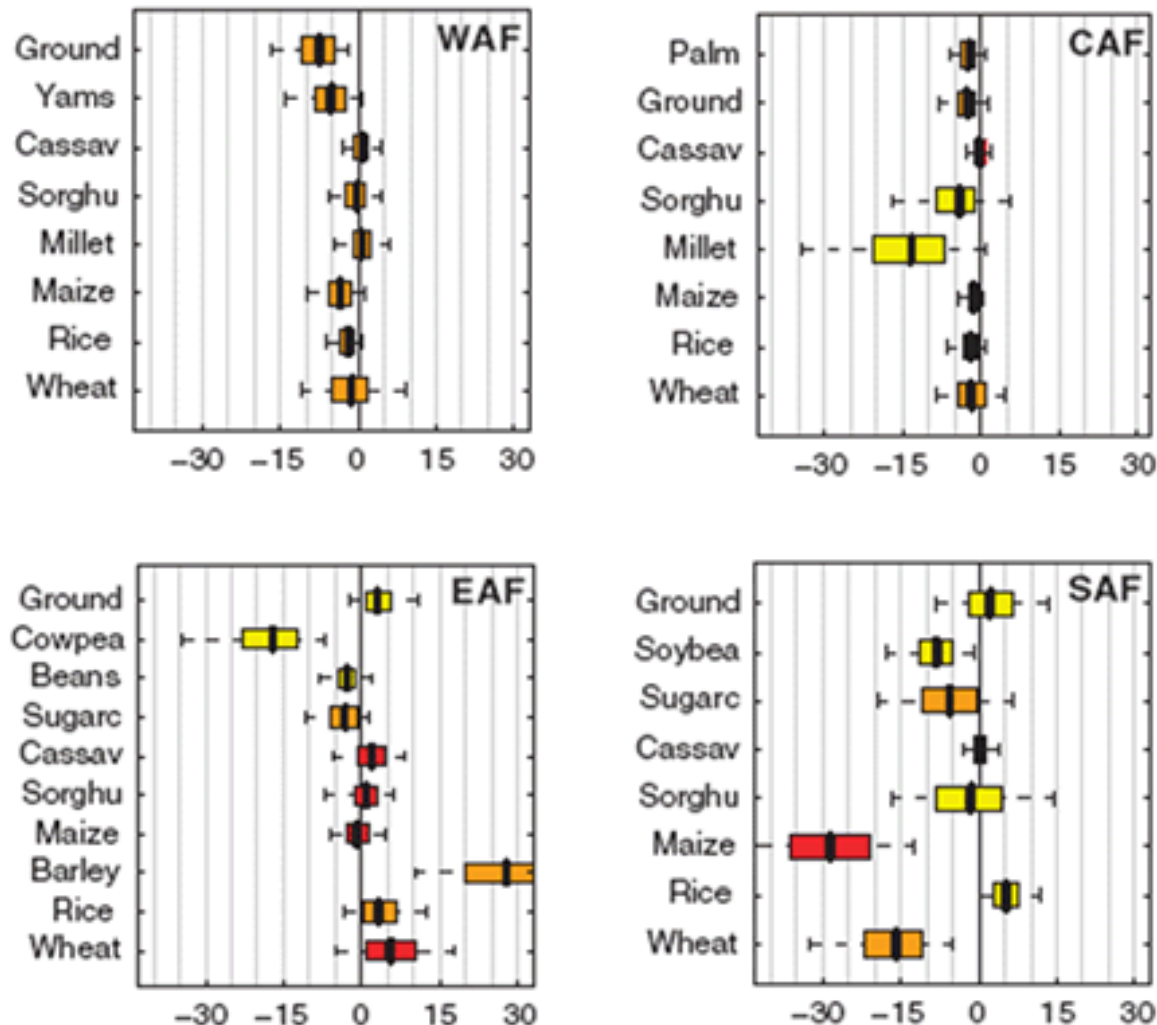


No-tillage systems for climate variability adaptation

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Impact of climate variability on Food Security in Africa



(Lobell et al., 2008. Science)

What are no-tillage systems?

There are many terms for this:

- No-tillage, zero-tillage, minimum tillage
- Conservation agriculture/farming

All based on the same three principles:

- Surface crop residue retention
- Minimal soil movement
- Crop rotation

Does not work in all environments

- Seems to be more useful in drier areas
- Does not work if agro-ecosystem is very wet

Case study - Zimbabwe

- Zimbabwe has been working with no-tillage since 2004
- Working with nearly 13,000 direct beneficiaries across the country

Year	Project beneficiaries	Adopters outside the project
2004-5	670	8
2005-6	1,050	375
2006-7	4,254	923
2007-8	10,256	2,123

- Land sizes of no-tillage are 0.1 to 0.5 acres out of an average of 5 acres

Results from the field - Zimbabwe

- **Improved water management**
 - Improved ground cover
 - Reduced moisture evaporation
 - Less water run-off, increased infiltration
 - Reduced soil erosion



Results from the field - Zimbabwe

- **Improved labour use**

- Better weed control
- More timely planting
- Smaller more intensively managed plots
- Micro-dosing of fertiliser



Results from the field - Zimbabwe

■ Challenges of no-tillage systems

- Trade-offs for crop residue use, e.g. livestock feed, fuel.
- Access to inputs like fertilizer and herbicides
- Access to mechanization e.g. jab planters, rippers, direct seeders



Moving from plot to watershed level

- Full benefits of no-tillage will not be seen at farm level without community bye-laws, e.g.
 - to stop burning
 - to agree dry season grazing
 - large scale SWC
- Watershed scale soil and water conservation for land regeneration supported by no-tillage
 - increase productivity of restored land
 - linked to an IWRM strategy



(Amede, 2008)

Mitigation of climate variability

- **Tree planting and avoided deforestation at watershed scale**
 - Linked to no-tillage systems
 - Linked to payment for Ecosystem services
 - Linked to payment for C sequestration



[Next Steps]

- Introduce no-tillage options into more of our programming
- Development of a best practice guide on adaptation to climate change
- Tree planting for voluntary market carbon payments is being piloted in Kenya and Ethiopia

For More Information...

- *Intergovernmental Panel on Climate Change* (<http://www.ipcc.ch>)
- *The African Conservation Tillage Network* (<http://www.act.org.zw>)
- *FAO Community of Practice on CA* (<http://www.fao.org/ag/ca>)
- *Robert Delve* (rdelve@earo.crs.org)

Thank you!